Remarks

Referring to the Examiner's rejections under 35 U.S.C. §112 (paragraphs 1 to 3 of the detailed action) Applicants amend claim 13 to recite "in which said indicative signals comprise any non-zero signals ..." (emphasis added). The term "indicative signals has antecedent basis in claim 10 in which a transmission detector is arranged to detect signals from a network indicative of a transmission ...". All is believed to be in order.

The Examiner rejects claims 10 to 14, 16 and 18 under 35 U.S.C. §102(b) as being anticipated by Papadimitriou ("Self-Adaptive Random-Access Protocols for WDM Passive Star Networks", IEE Proc.-Compu. Digit. Tech., Vol. 142, No. 4, July 1995). The Examiner also rejects claim 15 under 35 USC 103(a) as being unpatentable over Papadimitriou in view of DI Martini (US 3,994,590). Reconsideration is requested.

In response to the former rejection, Applicants have amended claims 10 and 18 to include the limitation that the transceiver is arranged to receive broadcast data on a second optical frequency. Furthermore, the claims are limited such that the transceiver is capable of transmitting data only on a first optical frequency and has a detector (not a receiver) for detecting signals indicative of transmission by another transceiver, but only on the first optical frequency. The Examiner will appreciate that the network topology of Papadimitriou is quite different to that described in the present application. In Papadimitriou the topology is symmetric with each station being capable of transmitting information to every other station of the network and, similarly, being able to receive data from every other station of the network. To achieve this, each station has a specific wavelength assigned to it which is used by other stations to address that particular station. Furthermore, each station has a tunable laser which may be tuned to the specific wavelength of a selected other station thereby enabling transmissions to be addressed to that other station only.

In contrast, in the present invention an asymmetric topology is described in which there is a headend which broadcasts data to all outstations on a second optical frequency and a plurality of outstations which are capable of receiving broadcast data on that second optical frequency, but which are only capable of transmitting data on a first optical frequency common to all such outstations. Furthermore, outstations need only detect collision on the

first optical frequency, since this is the only frequency on which collision can occur. This is important in the case of PONs because the cost of outstation equipment must be kept to a minimum relative to the cost of the headend, since there are a plurality of outstations and only one headend. This is in contrast to the stations described with reference to figure 3 of Papadimitriou which have a tunable laser (i.e., they can transmit on a plurality of wavelengths) and collision detection equipment for each specific wavelength of other stations of the network which is expensive. Accordingly, Applicants submit that the invention as claimed in claims 10 to 16 and claim 18 is novel and non-obvious over the art cited by the Examiner.

The Examiner rejects claims 1 to 7 and claim 17 under 35 USC 103(a) as being unpatentable over Papadimitriou in view of Wright (US 6,411,410). Reconsideration is requested.

Applicants do not accept that one skilled in the art would be motivated to combine the teachings of these two references since they relate to entirely different topologies – one being a symmetric network arrangement, the other being asymmetric. Furthermore, it is submitted that it would be technically impossible for one skilled in the art to combine the teachings of these references to arrive at the invention as claimed for the following reasons. Papadimitriou discloses a plurality of stations coupled together by a passive star coupler. In contrast, Wright discloses a PON in which a OLT is connected to a plurality of ONUs by way of an optical splitter (see column 6 lines 13 to 17 and figure 2). The point is that in Papadimitriou a coupler is used so that each station may communicate with each other station, whereas in Wright a splitter is used because it is specifically not desired that one ONU should receive any upstream signal from another ONU. In conventional PONs, not only do ONUs (i.e. outstations) not communicate with each other, but they do not receive optical signals between each other. One reason for this is that having a coupler means that signal power to the headend is lost since the upstream signal must be coupled to each and every other outstation in the PON. Applicants submit that it is an inventive aspect of the present application that optical connectivity is provided between outstations, although not for the purpose of communication between outstations, but for the purpose of enabling carrier sense collision detection (CS/CD) at the outstations. One skilled in the art, even if he were

motivated to combine Papadimitriou and Wright (which is denied), would not arrive at this claimed solution without having exercised inventive capacity.

The Examiner further rejects claims 8 and 9 under 35 USC 103(a) as being unpatentable over Papadimitriou and Wright and further in view of Profumo (US 6,347,096). Applicants submit that this rejection is moot in view of the arguments presented above in relation to claims upon which claims 8 and 9 are dependent.

Accordingly, Applicants request favorable consideration of the present application.

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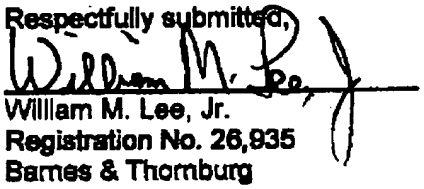
Respectfully submitted,



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